

CLAIMS

1. A lithium secondary battery comprising a positive electrode, a negative electrode, and a nonaqueous electrolytic solution containing an electrolyte salt dissolved in a nonaqueous solvent, characterized in that said positive electrode is made of a material including a lithium compound oxide, in that said negative electrode is made of a material including graphite, and in that said nonaqueous electrolytic solution contains dialkyl oxalate and further contains vinylene carbonate and/or 1,3-propanesultone.

2. A lithium secondary battery according to claim 1, wherein the alkyl group of said dialkyl oxalate has 1 to 12 carbon atoms.

3. A lithium secondary battery according to claim 1 or 2, wherein the content of said dialkyl oxalate is 0.01 to 10 % by weight, the content of said vinylene carbonate is 0.01 to 20 % by weight, and the content of said 1,3-propanesultone is 0.01 to 20 % by weight, each based on the weight of said nonaqueous electrolytic solution.

4. A lithium secondary battery according to claim 1 or 2, wherein said nonaqueous solvent is a combination of a cyclic carbonate with a linear carbonate or a combination of a cyclic carbonate with a lactone.

5. A lithium secondary battery according to claim 1 or 2, wherein said linear carbonate comprises methyl ethyl carbonate.

6. A lithium secondary battery according to claim 1 or 2, wherein said nonaqueous solvent is a combination of propylene carbonate with dimethyl carbonate, a combination of ethylene carbonate with methyl ethyl carbonate, a combination of ethylene carbonate with diethyl carbonate or a combination of ethylene carbonate with γ -butyrolactone.

7. A lithium secondary battery according to claim 1 or 2, wherein said graphite has a lattice spacing (d_{002}) of the lattice face (002) of 0.340 nm or less.

8. A lithium secondary battery according to claim 1 or 2, wherein the positive electrode active material is a lithium compound metal oxide showing an open circuit voltage of at least 4.3 V on Li basis after completion of charging.

9. A nonaqueous electrolytic solution for a lithium secondary battery having a positive electrode and a negative electrode, comprising an electrolyte salt dissolved in a nonaqueous solvent, characterized in that said nonaqueous electrolytic solution contains dialkyl oxalate and further contains vinylene carbonate and/or 1,3-propanesultone.